इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 13085 (1991): Hydraulic fluid power - Single rod cylinders, 160 bar (16 MPa) - Medium series - Port dimensions [PGD 16: Fluid Power]

"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

IS 13085 : 1991
ISO 8136 : 1986

(Reaffirmed 2002)

Indian Standard

HYDRAULIC FLUID POWER – SINGLE ROD CYLINDERS, 160 bar (16 MPa) MEDIUM SERIES – PORT DIMENSIONS

UDC 621·8·032 : 621·226 : 006·078

© BIS 1991

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

May 1991

Price Group 2

IS 13085 : 1991
ISO 8136 : 1986

Indian Standard

HYDRAULIC FLUID POWER – SINGLE ROD CYLINDERS, 160 bar (16 MPa) MEDIUM SERIES – PORT DIMENSIONS

NATIONAL FOREWORD

This Indian Standard, which is identical with ISO 8136 : 1986 'Hydraulic fluid power — Single rod cylinders, 160 bar (16 MPa) medium series — Port dimensions' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendations of Hydraulic Fluid Power Systems Sectional Committee (PE 15), and approval of the Production Engineering Division Council.

In the adopted standard, certain terminology, conventions and method of presentation are not identical with those used in the Indian Standards; attention is specially drawn to the following:

a) Wherever the words 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as decimal marker while in Indian Standards the current practice is to use point (.) as the decimal marker.

In the adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Indian Standard*	*Degree of Equivalence*
ISO 3320 : 1985	IS 8208 : 1976 Sizes for cylinder bores and piston rod diameters for fluid power systems	Technically equivalent
ISO 5598 : 1985	IS 10416 : 1982 Glossary of terms relating to fluid power	Technically equivalent
ISO 6020/1 : 1981	IS 11003 : 1984 Recommendations for mounting dimensions for hydraulic fluid power – Single rod cylinders 160 bar medium series bore 25 to 500 mm	Technically equivalent

The concerned technical committee has reviewed the provisions of ISO 6149, ISO 6162 and ISO 6164 referred in this adopted standard and has decided that they are acceptable for use in conjunction with this standard.

As in the Original Standard, this Page is Intentionally Left Blank

0 Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a fluid (liquid or gas) under pressure within an enclosed circuit.

One component of such systems is the fluid power cylinder. This is a device which converts power into linear mechanical force and motion. It consists of a movable element, i.e. a piston and piston rod, operating within a cylindrical bore.

1 Scope and field of application

This International Standard lays down the port dimensions for 160 bar[1] (16 MPa) medium series cylinders as required for interchangeability of commonly used hydraulic cylinders.

NOTE — This International Standard allows manufacturers of hydraulic equipment freedom in design of metric cylinders; it does not restrict technical development but provides basic guidelines.

The medium series dimensions are applicable to both round or square head cylinders thus allowing a wider range of application. They permit larger ports[2] with longer cushions that are particularly suitable for applications requiring higher velocity and rapid decelerations.

2 References

ISO 3320, *Fluid power systems and components — Cylinder bore and piston rod diameter — Metric series.*

ISO 5598, *Fluid power systems and components — Vocabulary.*

ISO 6020/1, *Hydraulic fluid power — Single rod cylinders — Mounting dimensions —* 160 bar (16 000 kPa) *series — Part 1 : Medium series.*

ISO 6149, *Fluid power systems and components — Metric ports — Dimensions and design.*

ISO 6162, *Hydraulic fluid power — Flange connections — Four-bolt split flanges rated for normal duty applications —* PN 35 *to* PN 415 (3,5 *to* 41,5 bar) *— Dimensions.*[3]

ISO 6164, *Hydraulic fluid power — Flange connections — Four-bolt, one-piece square flanges rated for normal duty applications —* PN 250 *and* PN 400 (25 MPa *and* 40 MPa) *— Dimensions.*[3]

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 5598 and the following definitions apply.

3.1 cylinder : A device which converts fluid power into linear mechanical force and motion.

3.2 cylinder bore : The internal diameter of the cylinder.

3.3 port : An internal or external terminus of a passage in a component.

---

[1] 1 bar = 0,1 MPa = 10^5 Pa; 1 Pa = 1 N/m^2

[2] This International Standard permits all ISO approved ports that are appropriate to fluid power applications.

[3] At present at the stage of draft.

4 Dimensions

Port sizes and dimensions for cylinders manufactured in accordance with ISO 6020/1 shall be selected from the table.

5 Bore sizes

The following bore sizes[1] are included in this 160 bar (16 MPa) medium series :

25 – 32 – 40 – 50 – 63 – 80 – 100 – 125 – 160 – 200 – 250 – 320 – 400 – 500 mm

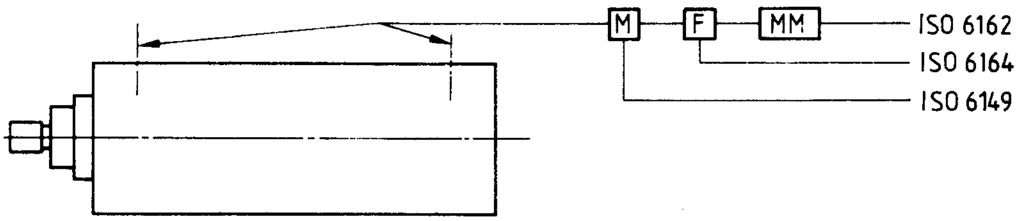
6 Identification statement (Reference to this International Standard)

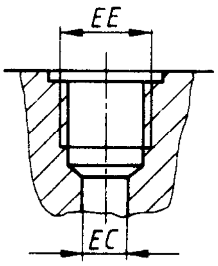
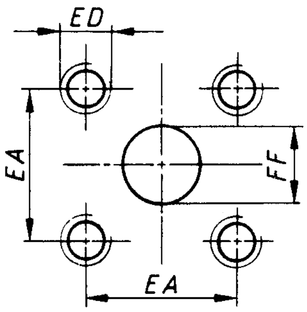
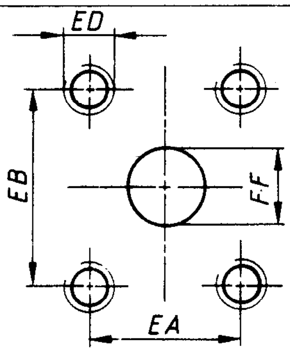
Use the following statement in test reports, catalogues and sales literature when electing to comply with this International Standard :

"Port dimensions selected in accordance with ISO 8136, *Hydraulic fluid power — Single rod cylinders,* 160 bar (16 MPa) *medium series — Port dimensions.*"

Table — Port and flange sizes

Dimensions in millimetres



Bore	ISO 6149 Port		ISO 6164 Square flange				ISO 6162 Rectangular flange				
											
	M		F				MM				
	EE	*EC* min.	Nominal flange size DN	*FF* 0 − 1,5	*EA* ± 0,25	*ED*	Nominal flange size DN	*FF* 0 − 1,5	*EA* ± 0,25	*EB* ± 0,25	*ED*
25	M14 × 1,5	6									
32	M18 × 1,5	10									
40 50	M22 × 1,5	12									
63 80	M27 × 2	16	13	15	29,7	M8 × 1,25	13	12,7	17,50	38,10	M8 × 1,25
100 125	M33 × 2	20	19	20	35,3	M8 × 1,25	19	19,1	22,25	47,65	M10 × 1,5
160 200	M42 × 2	25	25	25	43,8	M10 × 1,5	25	25,4	26,20	52,35	M10 × 1,5
250 320	M50 × 2	32	32	32	51,6	M12 × 1,75	32	31,8	30,20	58,70	M12 × 1,75
400 500	M60 × 2	38	38	38	60	M14 × 2	38	38,1	35,70	69,85	M14 × 2

---

[1] Selected from ISO 3320.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standard Act, 1986* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any from without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type of grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Revision of Indian Standards

Indian Standards are reviewed periodically and revised, when necessary and amendments, if any, are issued from time to time. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition. Comments on this Indian Standard may be sent in BIS giving the following reference :

Doc : No. PE 15 (5365)

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephone : 331 01 31, 331 13 75

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices :		Telephone
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110001	331 01 31 331 13 75
Eastern	: 1/14, C.I.T. Scheme VII M, V.I.P. Road, Maniktola, CALCUTTA 700054	37 86 62
Northern	: SCO 445-446, Sector 35-C, CHANDIGARH 160036	53 38 43
Southern	: C.I.T. Campus, IV Cross Road, MADRAS 600113	41 29 16
Western	: Manakalaya, E9 MIDC, Marol, Andheri (East) BOMBAY 400093	6 32 92 95

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. PATNA. THIRUVANANTHAPURAM.

Printed at the Central Electric Press. Delhi, India